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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/486,183	02/23/2000	Ian L Gray	540-188	3135

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EXAMINER

AFTERGUT, JEFF H

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 05/20/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/486,183

Applicant(s)

GRAY, IAN L

Examiner

Jeff H. Aftergut

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) = .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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Claim Objections

1. Claims 5-11 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend upon another multiple dependent claim (for instance). See MPEP § 608.01(n). Accordingly, the claims 5-11 have not been further treated on the merits.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Vane.

Vane suggested that it was known at the time the invention was made to form a composite article via a pultrusion operation, see Figure 3. in particular, the reference suggested that one skilled in the art would have provided a reinforcing material 13 in a reinforcing material producing means 14 and fed the same to a pultrusion die 28 where resin was injected into the reinforcement by suitable injecting means 31 from supply 32. the formed article is then suitably

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cured by a curing means 26 in order to solidify the resin therein. The reference taught that the forming means 14 for forming the fabric included the introduction of independent reinforcing components 3a, 4a can be added to the various plies of reinforcement 1-6 formed from reinforcing fibers in order to provide additional reinforcement at a required local in the finished end product, column 5, lines 60-65. the reference suggested that various types of yarns would have been suitable for the operation including the use of glass fibers as well as carbon fiber for the reinforcement. The reference failed to state that the additional reinforcements 3a, 4a would have been provided from a fiber material different from the fiber material of the other plies in the composite, however in order to provide additional reinforcement in a localized region, depending upon the necessary characteristics of the finished assembly, one skilled in the art would have understood that fibers of a different type would have been provided in different regions of the finished assembly. It would have been obvious to one of ordinary skill in the art of pultrusion to provide different fibers in additional pieces added to the reinforcement plies in Vane in order to alter the reinforcing properties of the finished assembly in the process of making a composite having a varied strength characteristic along the length of the same.

With regard to claim 2, note that the inclusion of different types of fibers would have necessarily resulted in variance in fiber tenacity and fiber modulus. Regarding claim 4, note that the plies were stitched together thus forming a finished assembly which included the interlaced additional reinforcement.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vane in view of any one of Kalnin, Durand et al or Gorthala et al.

Vane is discussed above in paragraph 4 and applicant is referred to the same for a complete discussion of the reference. The reference failed to expressly suggest that one skilled in the art would have utilized different fiber material in the additional layers which were added in order to impart additional strength in the localized regions where the same were applied. The reference to either one of Kalnin, Durand et al or Gorthala et al suggested that those skilled in the art would have understood that the fibers from one layer to another layer would have been varied in order to attain the desired strength in the finished assembly. Namely the reference to Kalnin suggested that those skilled in the art would have employed both fibers of glass and carbon in the fiber reinforced composite in order to attain a finished composite of the desired stiffness and strength. Regarding Gorthala, the reference suggested that those skilled in the art would have applied plural layers of fibers in a pultrusion operation wherein various layers of the fibers included fibers of differing compositions in order to achieve the desired strength in the finished assembly. Durand et al suggested that one skilled in the art would have utilized various types of fibers in a pultrusion in order to impart the desired characteristics of the finished product, column 2, lines 45-55. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a different type of reinforcing fiber in the composite of Vane in order to alter the stiffness and/or strength in the finished assembly as such was known in composite manufacture as suggested by Kalnin, Durand et al or Gorthala et al.

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7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 6 further taken with any one of Yokota et al or Street.

The references as set forth above suggested that those skilled in the art at the time the invention was made would have intermixed various types of fibers together in order to impart the desired final strength characteristics to the finished pultruded composite. It should be noted that the additional reinforcement was added at various points along the length of the product. The references failed to teach that those skilled in the art of composite article manufacture and in particular pultrusion would have known at the time the invention was made to incorporate fibers along the length of the composite article via a splicing operation where lengths of the reinforcement were assembled together in order to vary the fiber content along the length of the finished assembly. However, the use of splicing in the process of manufacturing composite articles on a continuous basis was known per se as evidenced by either one of Yokota et al or Street. More specifically, Yokota suggested that it was known at the time the invention was made to splice fiber tows together in a pultrusion operation in order to provide a continuous supply of the fiber tow in the operation. Street suggested that in order to provide continuous supplies of fiber in composite article manufacture the ends of the fibers would have been spliced together. Because Vane suggested that those skilled in the art at the time the invention was made would have incorporated various kinds of reinforcement along the length of the pultruded part and it was known to splice fibers together to provide a supply of the same in a pultrusion operation, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ splicing as a technique to intermingle the various fibers as such techniques

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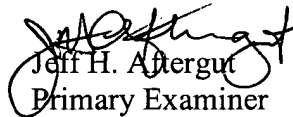
were known as suggested by Yokota et al or Street in the process as set forth above in paragraph 6.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chang suggested the use of plural sets of filaments of different compositions in order to make a composite leaf spring.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 703-308-2069. The examiner can normally be reached on Monday-Friday 6:30-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Jeff H. Aftergut
Primary Examiner
Art Unit 1733

JHA
May 16, 2002